traxon

Dot XL-3

INSTALLATION GUIDE

V0.7

Cover:
Dot XL-3
Dot XL-3 Diffuser Version

traxon

CONTENT

1.	INTRODUCTION	3
2.	INSTALLATION	6
3.	SAFETY AND OPERATION	14
4.	SYSTEM CONFIGURATION	15
5.	CARE AND MAINTENANCE	17
6.	TECHNICAL SPECIFICATION	18
7.	TROUBLESHOOTING	19
8.	WARRANTY STATEMENT	19

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1. INTRODUCTION

1.1 General

The Traxon™ Dot XL-3 is an extra bright dot with 3 LEDs per dot casing. The dots are constructed on a flexible cable with a customizable pitch containing up to 88 dots. With numerous additional customization options, the Dot XL's flexibility is unparalleled and its application possibilities nearly limitless. The dots are single dot controllable by DMX512 or e:pix (DVI capable) making this durable, scalable solution equally ideal for vivid accent, text, and graphics in installations of any size and complexity. Each string is connected via the Dot XL Pixel Distributor which can be easily daisy chained to form large installations.

The IP67-rated, UV-resistant cover and thermoplastic casing make the Dot XL suitable for a variety of outdoor applications.

Features:

- Up to 88 dots on a string for Dot XL-3 (dependant on length of lead cable and pixel pitch)
- DMX512 / e:pix Control
- Daisy Chain System
- Auto-Addressing
- SMART CHIP™ Technology
- Outdoor Applications (Dot XL IP66/IP67; Pixel Distributor IP66; LED Engine IP67)
- Suitable for irregular surfaces, planes, and configurations
- Optional field-cut end cap for cable
- Optional Diffuser Dome available

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1.2 Dimensions

FIG.1: Dot XL-3

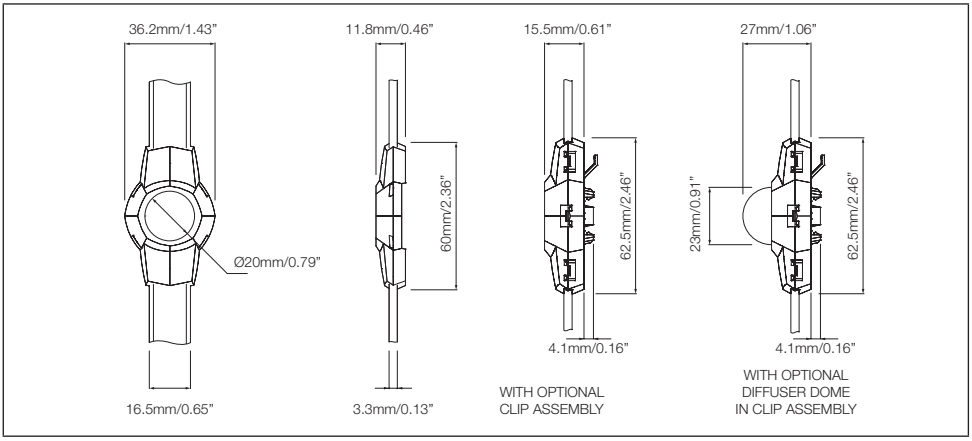
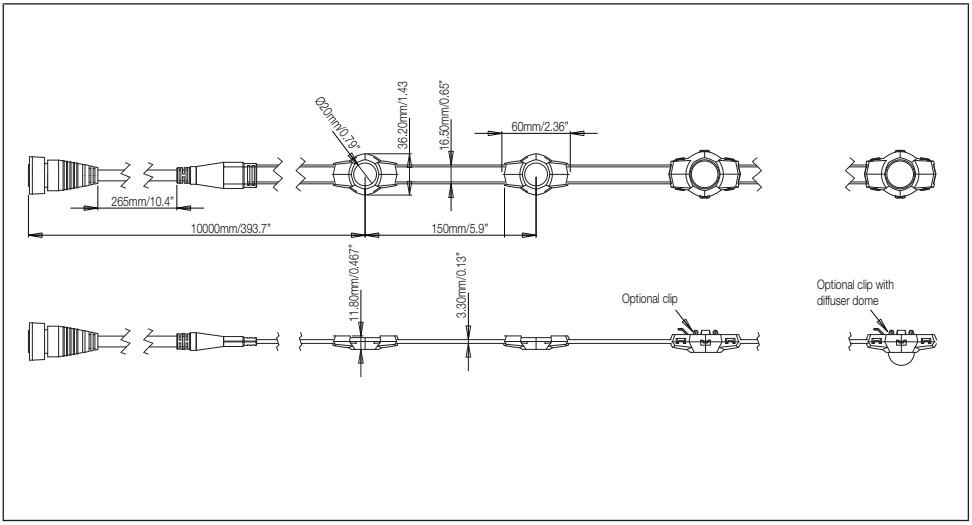


FIG.2: Dot XL-3 String



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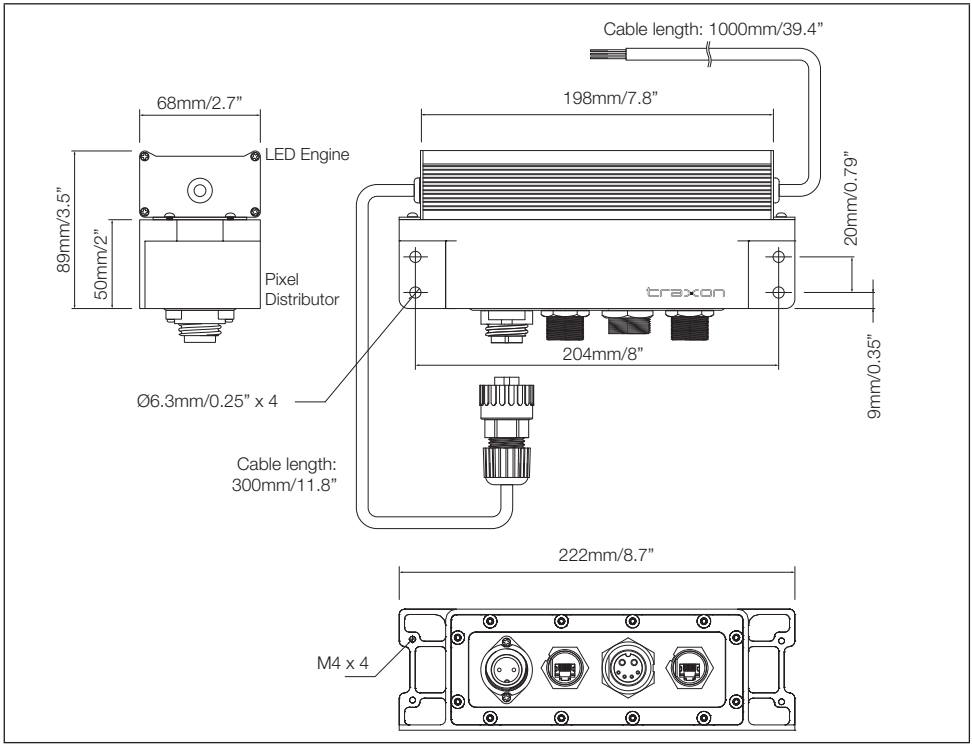
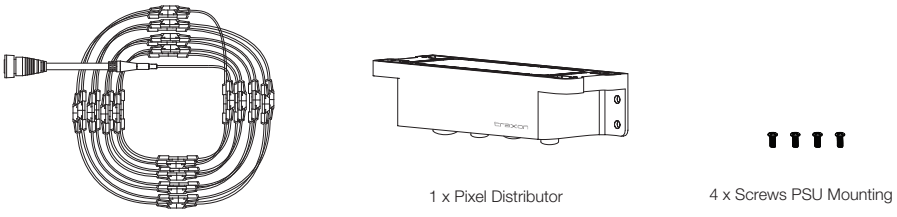
1.3 Pixel Distributor

FIG.3: Pixel Distributor



1.4 Packing Contents

FIG.4: Packing Contents



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2. INSTALLATION

2.1 Points To Consider

Plan your installation before mounting any luminaires. The following should be considered for a successful installation.

- Weather conditions and ambient temperature of installation site.
- Appropriate cable lengths and the use of optional Field-cut End caps.
- Adequate space for better heat dissipation (150mm apart) of LED Engines (see 2.3 On-Site Installation step 1).
- Appropriate length of DIN rail and number of anchor bolts to secure DIN rail to installation surface.
- The number of Dot XLs and appropriate Pixel Distributors with LED Engines.
- DMX512 controller to be used to control the Dot XLs.

2.2 Pre-Installation Checks

2.2.1 Installation Checklist

1. Prepare cables and all necessary accessories.
2. Perform functional check of Dot XLs.
3. Ensure the DATA OUT connector on all Pixel Distributors are covered by the Waterproof End Cap after testing (see FIG 5). Keep Waterproof End Caps safe for reuse.
4. Ensure all pre-installation checks laid out below have been followed.
5. Mount the Dot XLs on-site. If the installation is to be left uncompleted overnight, place all non-connected LED Engines, Pixel Distributors and Dot XLs in an indoor environment.

Ensure all the Connection Cables, Dot XLs with LED Engines and Pixel Distributors are initially stored in a dry area to guarantee the complete sealing of the system from water before installation.

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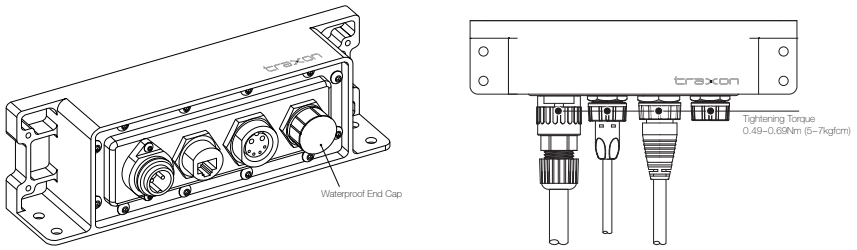
Connector should be properly connected with cable connectors and the DATA OUT of the last Pixel Distributor should be covered by its Waterproof End Cap to ensure IP66/67 rating.

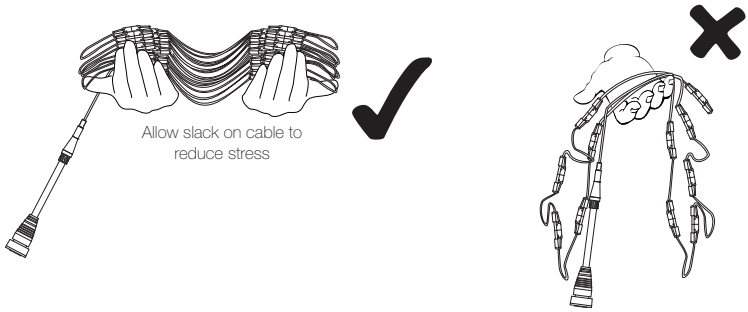
FIG.5: Seal last Pixel Distributor with Waterproof End Cap



2.2.2 Handling The Dot XL String

When transporting or preparing the Dot XL string, please handle with care. To reduce stress on cables, carry by the dots and not the cable during transit.

FIG.6: Correct way of handling Dot XL String



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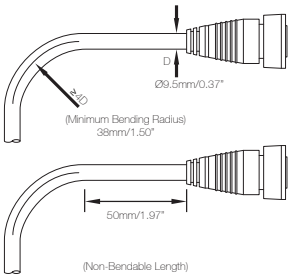
2.2.3 Requirements Of Cable Bending And Twisting

Please take EXTRA precautions before bending or twisting Dot XL cable.

Round Lead Cable must NOT be bent below the Minimum Bending Radius (4x Cable Diameter) and the Non-Bendable Length of 50mm near the connector end or near the cable overmold MUST be adhered to.

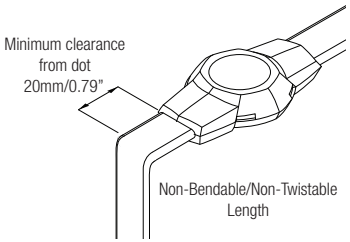
FIG.7: Minimum Cable Bending and Non-Bendable Length Requirement



The flat Dot XL Cable must NOT be bent/twisted below 20mm (0.79") from edge of Dot housing (Non-Bendable/Non-Twistable Length).

Twisting the flat cable is NOT recommended. If twisting is necessary for installation, please adhere to the above Non-Twistable Length and ensure the mounting pitch is greater than or equal to 75% of the normal Dot to Dot pitch. The middle part of the cable must be secured to the mounting fixture with a cable tie (see 2.3 On-Site Installation steps 6-7 and FIGs 12-13). Ensure no damage is generated on the cable.

FIG.8: Minimum Clearance



NOTE: Water ingress incurred due to excess cable bending/twisting will not be under warranty by Traxon Technologies.

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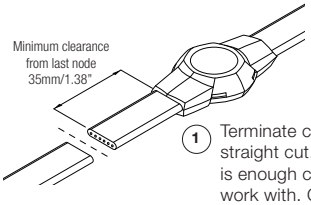
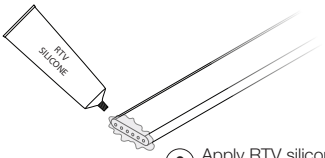
2.2.4 Optional Field-Cut End Cap

To prematurely end the length of a string of Dots, the optional Field-Cut End Cap should be used with silicone applied on open-ended cable. This should be done at least one (1) day before on-site installation to allow curing of silicone.

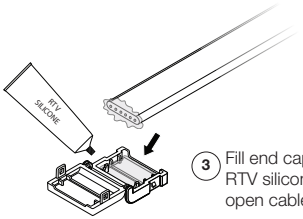
FIG.9: Field-Cut Sealing Procedures



1 Terminate cable with a straight cut. Ensure there is enough clearance to work with. Clean the surface using alcohol.

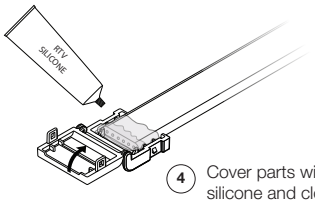


2 Apply RTV silicone (not included) on open-ended cable.

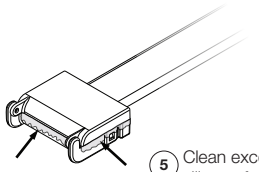


3 Fill end cap cavity with RTV silicone and press open cable end inside.

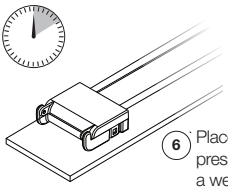
(D0.AC.0003600)



4 Cover parts with RTV silicone and close cover.



5 Clean excess silicone from end cap.



6 Place on flat surface and put pressure on end cap (eg. with a weighted object) for the cure time recommended by RTV silicone's instructions.

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2.2.5 Installation Sequence

1. Plan for any possible bending of cables (refer to Section 2.2.3 Requirements Of Cable Bending And Twisting).
2. Always keep the Waterproof End Cap on the Pixel Distributors or keep them safe in a container for reuse.
3. Connect Dot XLs with LED Engines and Pixel Distributors in the daisy-chain manner outlined in the System Diagram to form large installations.
4. Perform functional check on all Dot XLs and inspect cables for any damage. Check for any abnormalities with the signal.
5. Report any functional defect found to your nearest Traxon Technologies office. DO NOT attempt to install Dot XLs with functional defects on-site.

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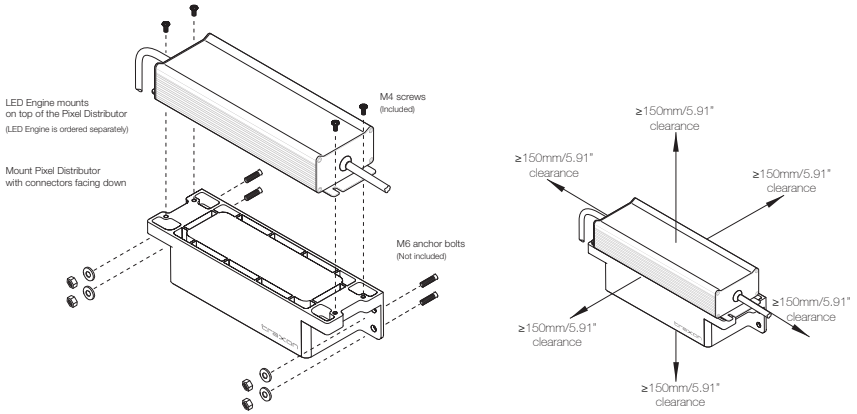
2.3 On-Site Installation

- DO NOT attempt installation in wet or severe weather conditions.
- DO NOT leave and expose any Dot XL, Pixel Distributor or LED Engine unconnected under wet/raining or snowing environment.
- Ensure all the cable connectors of Dot XLs are removed from the Pixel Distributors before installing.
- DO NOT pull on cable of Dot XLs. IP failure induced by stressed/damaged cables during or after installation will not be under warranty by Traxon Technologies.
- ALWAYS keep the cables protected from sharp objects and ensure no damage is generated on the cable.
- Failure to keep Dot XLs within the operating temperature range of –20°C to 50°C (–4°F to 122°F) and storage temperature range of –20°C to 70°C (–4°F to 158°F) will void the product's warranty.

1. Fix LED Engine atop Pixel Distributor with included M4 screws.
   NOTE: Keep adjacent LED Engines and Pixel Distributors a minimum 150mm (5.91") apart for better heat dissipation.

FIG.10: Mounting LED Engine atop Pixel Distributor



2. Mount the Pixel Distributor with 4x M6 Anchor Bolts (not included). Recommended orientation is with connectors facing DOWN (see above diagram).
3. Dot XLs must be mounted without any stress induced at the boundary area of the cable and Dot.

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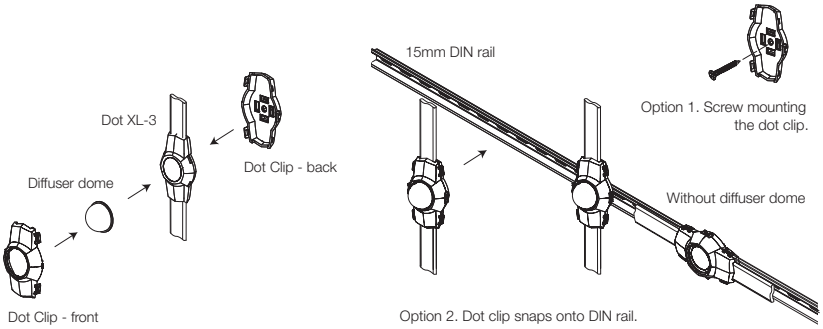
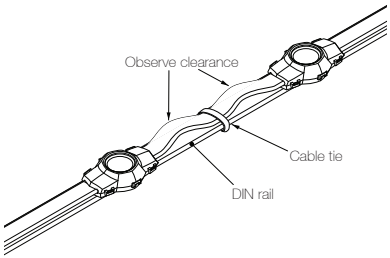
4. Dot XLs MUST be mounted to the installation surface with dot clips and DIN rail.

FIG.11: Mounting the Dot XLs


Dot XL-3
Dot Clip - back
Diffuser dome
Dot Clip - front
15mm DIN rail
Option 1. Screw mounting the dot clip.
Without diffuser dome
Option 2. Dot clip snaps onto DIN rail.

5. Cable segment must not be bent below 20mm from the housing of the Dot XLs and cable overmold (Minimum Bending Length).
6. Secure the cables between Dot XLs (approximately halfway, using cable tie) and create a small clearance beneath the cable (see below diagram). Ensure no damage is generated on the cable.

FIG.12: Securing the cable



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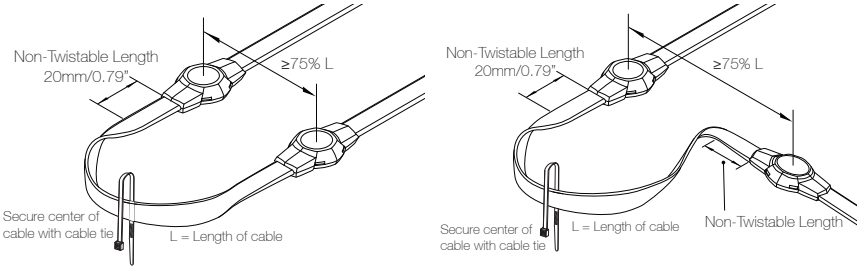
7. If the cable between Dot XLs requires twisting due to a change in mounting direction, ensure the mounting pitch after-twisting is more than or equal to 75% of the normal Dot to Dot pitch.

FIG.13: Twisting requirements



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3. SAFETY AND OPERATION

1. CAUTION - Unplug the power supply from the mains power before connecting any cables as this can damage the products.
2. CAUTION - Avoid looking directly into the LED light source at close range for your own safety.
3. Persons installing this product should make sure:
    1. The installation complies with all applicable codes, state and local laws, ordinances, standards and safety regulations.
    2. The installation environment is carefully studied and suitable surge protection measure(s) is taken.
    3. He or she is qualified for the handling of electrical equipment.
4. Do not attempt to install or use the product until installation instructions and safety labels are fully understood. This product is designed for indoor and outdoor use.
5. Ensure product operates within the specified temperature range. (Refer to 6. TECHNICAL SPECIFICATION for more details.)
6. Do not attempt to open the product. Not user serviceable.
7. Do not use the product if any part of it, or the power cables are damaged.
8. Only use product for specified voltage, do not exceed. (Refer to 6. TECHNICAL SPECIFICATION for more details.)
9. Always maintain connection to ensure waterproofing.
10. If the product has been subjected to drastic temperature variances, for example, following transportation, do not connect the fixture until it has reached room temperature, as moisture condensation may cause electric shock and product damages.
11. When installing the products and system power supplies, please ensure they will not be exposed to moisture and extreme heat (and direct sunlight for outdoor products). Besides, keep a clean operating environment for the fixtures and system power supplies.
12. Please study this Installation Guide thoroughly and check the latest Technical Specification Sheets available from the Traxon website www.traxontechnologies.com before setup.
13. Any non-compliance of the Installation Guide will void the Traxon warranty.

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4. SYSTEM CONFIGURATION

FIG.14: System Diagram – Butler S2

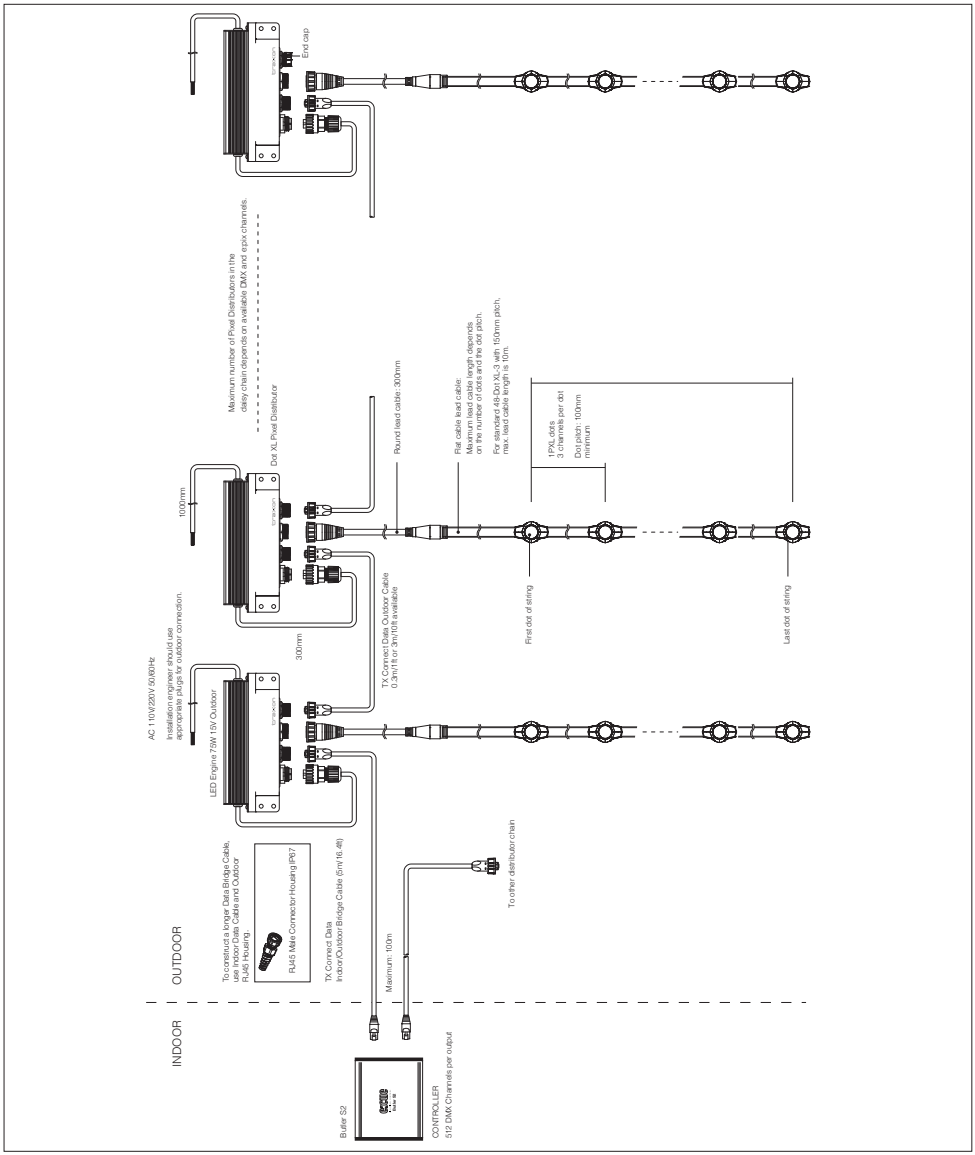
End cap
Maximum number of Pixel Distributors in the daisy chain depends on available DMX and artpx channels.
Dot XL Pixel Distributor
100mm
300mm
Round lead cable: 300mm
Flat cable lead cable:
Maximum lead cable length depends on the number of dots and the dot pitch.
For standard 48-Dot XL-3 with 150mm pitch, max. lead cable length is 10m.
1 PXL dots
3 channels per dot
Dot pitch: 100mm minimum
First dot of string
Last dot of string
TX Connect Data Outdoor Cable
0.3m/1ft or 3m/10ft available
AC 110V/220V 50/60Hz
Installation engineer should use appropriate plug for outdoor connection.
LED Engine 75W 15V Outdoor
To construct a longer Data Bridge Cable, use Indoor/Outdoor Cable and Outdoor RJ45 Housing
RJ45 Male Connector Housing IP67
TX Connect Data
Indoor/Outdoor Bridge Cable (5m/16.4ft)
Maximum: 10m
To other distributor chain
OUTDOOR
INDOOR
Butler S2
CONTROLLER
512 DMX Channels per output

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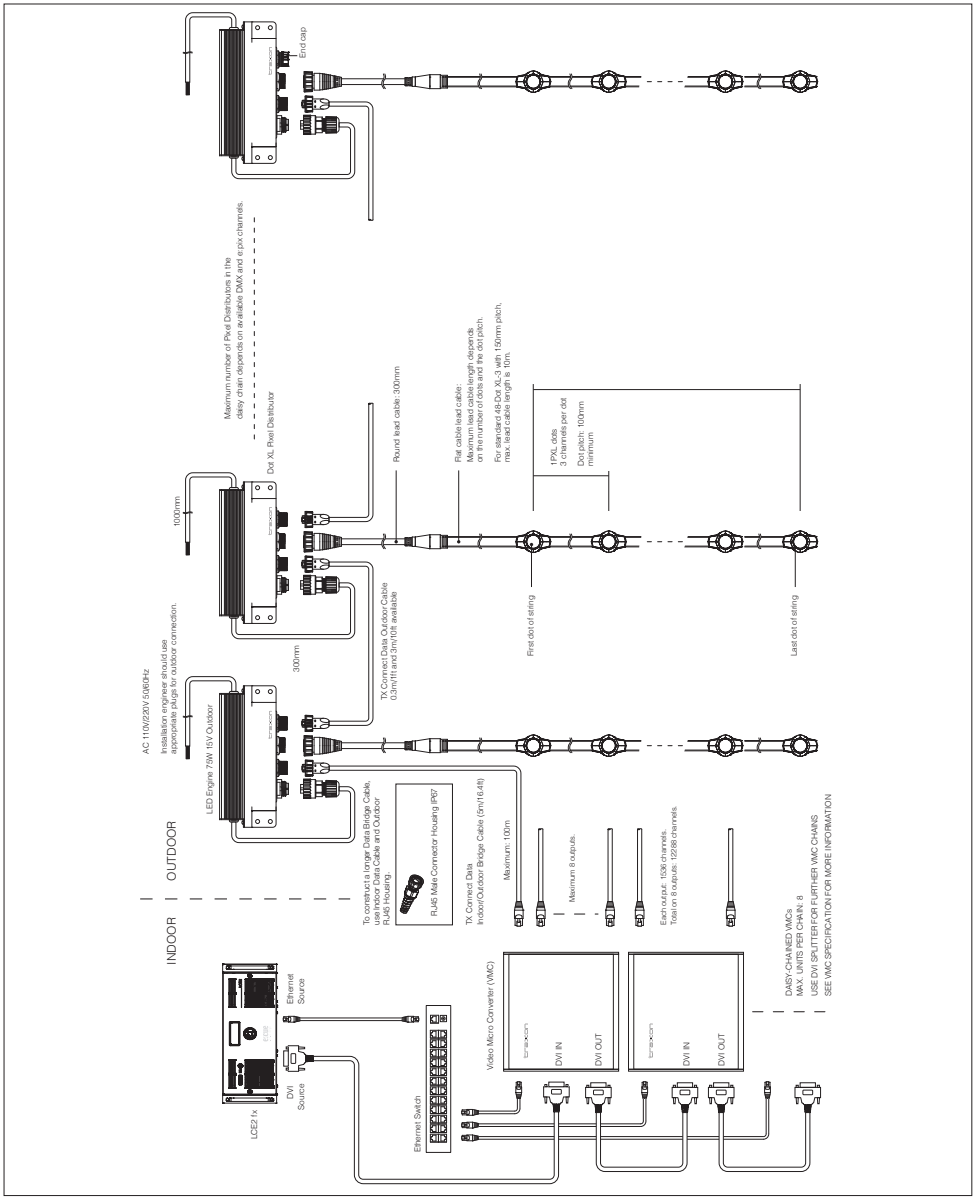
FIG.15: System Diagram – Video Micro Converter


INDOOR
OUTDOOR
AC 110V/230V 50/60Hz
Installation engineer should use appropriate plugs for outdoor connection.
LED Engine 75W 15V Outdoor
300mm
1000mm
Dot XL Pixel Distributor
Maximum number of Pixel Distributors in the daisy chain depends on available DMX and e:pix channels.
End cap
Round lead cable: 300mm
TX Connect Data Outdoor Cable 0.3m/1ft and 3m/10ft available
Flat cable lead cable:
Maximum lead cable length depends on the number of dots and the dot pitch.
For standard 48-Dot XL-3 with 150mm pitch, max. lead cable length is 10m.
1 PXL dots
3 channels per dot
Dot pitch: 100mm minimum
First dot of string
Last dot of string
To construct a longer Data Bridge Cable, use Indoor/Outdoor Data Cable and Outdoor RJ45 Housing
RJ45 Male Connector Housing IP67
TX Connect Data Indoor/Outdoor Bridge Cable (5m/16.4ft)
Maximum: 10m
Maximum 8 outputs.
Each output: 1536 channels.
Total on 8 outputs: 12288 channels.
DAISY-CHAINED VMCs
MAX. UNITS PER CHAIN: 8
USE DVI SPLITTER FOR FURTHER VMC CHAINS
SEE VMC SPECIFICATION FOR MORE INFORMATION
LCE2 Ix
Ethernet Source
DVI Source
Ethernet Switch
Video Micro Converter (VMC)
DVI IN
DVI OUT

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5. CARE AND MAINTENANCE

Traxon™ products are of superior design and quality and should be treated with care. The recommendations below will help fulfill any warranty obligations and gain good use and longevity from the products.

- Do not attempt or use the product(s) until you read and understand the installation instructions. Failure to adhere to these instructions could result in serious injury or property damage.
- Do not use product(s) if cables are damaged.
- Do not connect cables and connectors when wet or in wet area. Moisture on bare connectors can cause electric shock and damage to product(s).
- Do not use product(s) in extreme heat environment. Ensure there is sufficient airflow and use cool air circulation if required.
- Do not drop, knock, or shake product(s). Rough handling can damage the electronics and void the warranty.
- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean products. Wipe with a damp cloth on housings and a dry cloth on electronics to remove dirt or dust.
- Do not attempt to service or repair the product(s) unless done by an authorized service personnel. Contact your local Traxon office or distributor for details.
- If the product is not working as specified, please contact your nearest authorized service center or Traxon Technologies office for assistance.

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6. TECHNICAL SPECIFICATION

Dot XL-3	
Color Range:	16.7 million additive RGB colors with variable intensity
Light Source:	3 High intensity Nichia SMD LEDs per dot
Beam Angle:	120° (clear cover)
Power Input:	15V DC
Power Consumption (per dot):	1.5W max.
Weight:	25g (Dot); 670g (Pixel Distributor)
Operating Temperature:	–20°C to 50°C / –4°F to 122°F
Storage Temperature:	–20°C to 70°C / –4°F to 158°F

As with all electronic devices, LED output degrades over time - a term called lumen depreciation. This also explains why it is nearly impossible to expect photometric performances of two LED products with different service life spans to be the same. The rate of LED degradation is a complex function of many factors such as operating efficiency, duration of continuous operation, and operating conditions (e.g. ambient temperature).

Because LEDs are semiconductor devices, their performances are subject to inherent variability commonly found in semiconductor industry. To improve consistency in performance across the same product, LED manufacturers “sort” LEDs into bins according to different preset parameters, such as forward driving voltage, illumination, etc. Whereas binning is a sorting function, it is not a correction process. Inherent variability in the manufacturing process always results in different binning distributions according to different production lots. Traxon uses automatically binned LEDs on its products, thereby minimizing output variations within the model range.

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7. TROUBLESHOOTING

CAUTION: Ensure power supply is OFF when disconnecting / connecting cables.

Problem	Cause	Possible Solutions
Product does NOT light up after installation	Incorrect power connection	• Check Mains Power • Check power supply leads and wire connections • Ensure output wires are connected with proper polarity
Shadowing	Light source covered	• Adjust pitch between Dot XL strings • Check for cables, wires or unwanted debris covering LED light source
Modules are dim	Excess products connected	• Ensure the power supplies are not overloaded due to an excess of products connected
Flickering	Incorrect power input/ Excess products connected	• Ensure the input voltage is correct • Ensure the power supplies are not overloaded due to an excess of products connected

If problems persist or the product is not working as specified, please contact your nearest authorized service center or Traxon Technologies office for assistance.

8. WARRANTY STATEMENT

Traxon Technologies warrants its Products against material or workmanship defects for a period of three (3) years from date of purchase, provided that the purchased items are used under the conditions stated in this user manual.

Please refer www.traxontechnologies.com for all warranty terms and conditions.

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